

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Rev 98-25

In re Application	:	
Pagano, et al.	:	
Serial No. 09/843,000	:	Examiner: Sharmila Gollamudi
Filed: April 26, 2001	:	Art Unit: 1616
For : NAIL ENAMEL COMPOSITIONS, RELATED	:	
METHODS AND A TWO COMPONENT	:	
KIT FOR PAINTING THE NAILS	:	
-----X		

**DECLARATION OF ANJALI PATIL (37 C.F.R. §1.132)**

1. I am a co-inventor of the above-mentioned patent application.
2. I have a Ph.D. in polymer chemistry, obtained from the Indian Institute of Technology in Bombay, India, in 1982. I have been employed by Revlon since 1992, conducting research and development in cosmetic products containing novel polymers. Prior to my experience at Revlon I worked for certain companies and universities in the development of new polymers and the study of polymeric structures.
3. Under my direction and control twelve different compositions were prepared according to Example 6 of Perronin, U.S. Patent No. 3,991,007, using a copolymer comprised methyl methacrylate and acrylic acid (MMA/AA) and butyl methacrylate and acrylic acid (BMA/AA) and as set forth in attached Table 1.

The compositions were tested using two tests commonly used to test the integrity and properties of nail enamel films as set forth below.

**Paints and Varnishes -- Pendulum Damping Test -ANS/ISO 1522 – 1998(E)**

A copy of this test method was submitted with previous declaration.

A pendulum resting on a coating surface is set into oscillation and the time for the oscillation amplitude to decrease by a specific amount is measured. The shorter the damping time, the lower the hardness of the film.

A 6 mil wet film of each of the twelve compositions was drawn down on a separate glass plate. The resulting films were evaluated for film hardness over the period of 7 Days using a pendulum hardness tester equipped with a König Pendulum (see Section 5.1.1 of the test method). The readings were then taken at the elapsed time intervals of 1h, 2h, 4h, 24h, and 7 days after the films were drawn down. For example, at 1 hour after film draw down, for composition 1, the König pendulum tester was activated according to Section 5.1.1 in the test method. The amount of time required for the pendulum to deflect from 6° to 3° was noted, in this case for the MMA/AA and BMA/AA copolymer and recorded on Table 2 attached. The results of the other readings are tabulated in attached Table 2. This time period is detected by means of an automatic counter equipped with light barriers. The higher the time period the harder the film. A lower time period indicates a film that has lesser hardness.

In commercial nail enamel compositions, films that are too hard will be brittle, and crack and chip very readily.

#### **Mandrel Flex Test (Modification of ASTM D 522-93a)**

The Mandrel Flex Test conducted was a modification of the above mentioned ASTM method. A copy of that method was submitted with previous declaration. Our modifications made the test more suitable for use in ascertaining the commercial acceptability of nail enamel films.

For each of the twelve compositions, a 3 mil wet film of each composition was drawn down on a sheet metal plates of 0.3 mm in thickness. After 24 hrs, the plates were placed on a

1/8" cylindrical mandrel and then bent approximately 180° around the mandrel as set forth in the test method. The resulting plate was then bent back to being flat.

Cracking and Chipping in the region bent over the mandrel flex test demonstrates that the coating was not commercially acceptable for use in nail enamel.

All the compositions of MMA/AA showed cracking and tears in the region bent over the mandrel. Films containing the BMA/AA copolymer remained undamaged with no cracks or other imperfections.

4. Conclusion: The above test results demonstrate that the nail enamel films prepared using the BMA/AA copolymers of the invention provide improved results when compared to those of MMA/AA. The BMA/AA films are more commercially acceptable because they do not crack, chip, or exhibit other imperfections when subjected to the standard tests conducted to determine commercial acceptability of nail enamel films.

5. This declaration is made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both under 35 U.S.C. §1001, and may jeopardize the validity of the above identified patent application or patent issuing therefrom.

April 7, 2008  
Date

Anjali Abhimanyu Patil  
Anjali Abhimanyu Patil

**Table 1. % Compositions of each of the tested formulas are tabulated below. Please note that the Nitrocellulose, Butyl Phthalate and relative solvent levels are kept constant throughout all of the formulas.**

Material	1	2	3	4	5	6	7	8	9	10	11	12
	Formula	Formula	Formula	Formula	Formula	Formula	Formula	Formula	Formula	Formula	Formula	Formula
Ethyl Acetate	38.77	38.77	38.77	38.77	30.50	30.50	30.50	30.50	15.00	15.00	15.00	15.00
Butyl Acetate	7.88	7.88	7.88	7.88	6.20	6.20	6.20	6.20	3.05	3.05	3.05	3.05
Isopropanol	28.98	28.98	28.98	28.98	22.40	22.40	22.40	22.40	10.08	10.08	10.08	10.08
n-Butanol	4.07	4.07	4.07	4.07	3.20	3.20	3.20	3.20	1.57	1.57	1.57	1.57
Nitrocellulose	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20
Butyl Phthalate	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10
Pigment	5.00	5.00	5.00	5.00	13.70	13.70	13.70	13.70	30.00	30.00	30.00	30.00
MMA/AA (98/2)	5.00	-	-	-	13.70	-	-	-	30.00	-	-	-
MMA/AA (85/15)	-	5.00	-	-	-	13.70	-	-	-	30.00	-	-
BMA/AA (98/2)	-	-	5.00	-	-	-	13.70	-	-	-	30.00	-
BMA/AA (85/15)	-	-	-	5.00	-	-	-	13.70	-	-	-	30.00

**Table 2.** Results of the Pendulum Hardness evaluations of each of the aforementioned formulas. Please note the recorded values are in seconds.

Elapsed Time	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5	Formula 6	Formula 7	Formula 8	Formula 9	Formula 10	Formula 11	Formula 12
	MMA/AA (98/2)	MMA/AA (85/15)	BMA/AA (98/2)	BMA/AA (85/15)	MMA/AA (98/2)	MMA/AA (85/15)	BMA/AA (98/2)	BMA/AA (85/15)	MMA/AA (98/2)	MMA/AA (85/15)	BMA/AA (98/2)	BMA/AA (85/15)
1h	60	107	52	57	93	60	49	48	21	10	11	10
2h	63	119	56	61	93	93	56	70	45	14	14	13
4h	62	126	56	62	111	95	59	85	66	22	24	17
24h	67	141	53	70	116	121	63	99	88	73	38	56
7 Days	70	141	53	73	124	113	63	95	92	110	39	91